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IDENTIFIERS	Mechanical Drawing; *Quinmester Program

ABSTRACT

The course introduces the student to the drafting trade, freehand sketching, and basic mechanical drawing. The course has no prerequisites and will guide the student into drafting concepts and serve as a foundation for further study in vocational drafting. Requiring a total of 45 class hours, eight hours are utilized in orientation, 15 hours are spent sketching, mechanical drawing instruction requires 20 hours, and two hours are needed for the Quinmester posttest. Teaching aids include learning packages, audiovisual aids, demonstrations, group discussions, and related occupational information. The student is given the opportunity to work with professional-type equipment. (MW)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

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Course Outline
D R A F T I N G - B A S I C - 9253
(Orientation, Sketching, Mechanical Drawing)
Department 45, 48 - Quin 9253.01

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DADE COUNTY PUBLIC SCHOOLS
DIVISION OF INSTRUCTION • 1973

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Course Outline

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(Orientation, Sketching, Mechanical Drawing)

Department 45, 48 - Ouin 9253.01

county office of

VOCATIONAL AND ADULT EDUCATION

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Dade County Public Schools
Miami, Florida 33132

December, 1972

Published by the School Board of Dade County

Course Description

9253	45, 48	9253.01	Orientation, Sketching, Mechanical Drawing
State Category Number	County Dept. Number	County Course Number	Course Title

This quinmester course of study is designed to orient the student to the general field of drafting and its basic functions. The student is also instructed in the use of commercial quality drafting tools.

Indicators of Success: There are no related prerequisites.

Clock Hours: 45

PREFACE

The following quinmester course outline is presented as the first course in vocational drafting. It is intended that this course will guide the student into the drafting concepts with relative ease and at the same time create an interest for further education in the trade. The course introduces the student to the drafting trade, freehand sketching and basic mechanical drawing.

The course is taught in one-hour blocks for 45 hours and consists of four basic instructional blocks the last of which is a post-test. Completion of this course will serve as a foundation for further study in the vocational drafting program. There is no prerequisite to the course.

Many forms of instruction are used, including learning packages, audiovisual aids, demonstrations, group discussions and related occupational information. The student is given the opportunity to work with professional type equipment and is given classroom assignments in keeping with the learning processes of drafting.

The outline was developed through the cooperative efforts of the instructional and supervisory personnel, the Quinmester Advisory Committee and the Vocational Curriculum Materials Service, and has been approved by the Dade County Vocational Curriculum Committee.

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With Suggested Hourly Breakdown

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Class Responsibilities	1
Class Procedures	1
Materials and Supplies	1
II. SKETCHING (15 Hours)	
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Types of Sketches	1
Proportions	1
Lines	1
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GOALS

The student must be able to demonstrate:

1. Practices that help to create and maintain an acceptable learning environment in this drafting course.

2. Understanding the importance of drafting as being "the language of industry."

3. Knowledge of the basic drafting disciplines required in the field of drafting.

4. The positive attitudes regarding the value and dignity of a draftsman and his work.

5. An awareness of the general talents needed for advancement within this field.

6. The ability to produce a fully dimnesional, scale, multiview working drawing to the level of industrial acceptance.

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SPECIFIC BLOCK OBJECTIVES

BLOCK I - ORIENTATION

The student must be able to:

1. Discuss what benefits are derived from the drafting profession.
2. List five responsibilities of the student in a vocational drafting class.
3. Exhibit a knowledge of the class procedures and their contributions to the learning process.

BLOCK II - SKETCHING

The student must be able to:

1. Define the term "sketching" and give three reasons why it is a desirable skill.
2. List the two types of sketches that are drawn and an advantage of each type.
3. Define the term "proportion" as used in sketching and state why it is important.
4. Write the procedures involved in constructing the various types of lines as required in freehand sketching.

BLOCK III - MECHANICAL DRAWING

The student must be able to:

1. List three important qualities that are present on a good drawing.
2. Select three drafting tools and describe the use and maintenance of each.
3. List five factors that are included in good basic drawing techniques.

BLOCK IV - QUINMESTER POST-TEST

The student must be able to:

1. Satisfactorily complete the quinmester post-test.

Course Outline

D R A F T I N G - B A S I C - 9253
(Orientation, Sketching, Mechanical Drawing)

Department 45, 48 - Quin 9253.01

I. ORIENTATION

A. Introduction to Drafting
   1. Definition
   2. Drafting as a language - designer to shop
   3. Benefits of drafting as a profession

B. Class Responsibilities
   1. Absences and tardiness
   2. Grading
   3. Cleanliness
   4. Creating an environment

C. Class Procedures
   1. Work habits
   2. Learning packages
   3. Special assignments
   4. Student participation

D. Materials and Supplies

II. SKETCHING

A. Purposes of Sketching
   1. Expression of ideas
   2. Preliminary to drawings
   3. Time saving expedient
   4. Detail clarification

B. Types of Sketches
   1. Orthographic projections
   2. Pictorial
   3. Dimensioning

C. Proportions
   1. Estimating
   2. Height, width and length
   3. Use of grid paper

D. Lines
   1. Alphabet of lines
   2. Vertical or horizontal
   3. Angles
   4. Circles and arcs
   5. Irregular curves

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III. MECHANICAL DRAWING

A. Objectives in Mechanical Drawing
   1. Accuracy
   2. Legibility
   3. Neatness
   4. Speed

B. Tools and Equipment (Basic)
   1. Drawing boards
   2. Drawing pencils
   3. Triangles
   4. Scales
   5. Erasers
   6. Compass
   7. Drawing media

C. Basic Drawing Techniques
   1. Orderliness
   2. Fastening paper to board
   3. Pencil points
   4. Grades of pencils
   5. Drawing lines
   6. Keeping drawings clean
   7. Sheet layout

IV. QUINMESTER POST-TEST

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BIBLIOGRAPHY
(Orientation, Sketching, Mechanical Drawing)

Basic References:

1. French, Thomas E. and Svensen, Carl L. Mechanical Drawing. 7th ed. New York: McGraw-Hill Book Company, Inc., 1966. Pp. 570.

2. Walker, J. R. and Plevyak, E. J. Industrial Arts Drafting. Homewood, Illinois: Goodheart and Willcox, 1964. n.p.

Supplementary References:

3. Giachino, J. W. and Beukema, H. J. Engineering-Technical Drafting and Graphics. 2nd ed. Chicago: American Technical Society, 1966. n.p.

4. Giesecke, Frederick E. and Others. Technical Drawing. 4th ed. New York: Macmillan Company, 1958. n.p.

5. Spencer, Henry C. Basic Technical Drawing. Rev. ed. Macmillan Company, 1962. n.p.

APPENDIX

QUINMESTER POST-TEST SAMPLE

Quinmester Post-Test

Name _____ Date _____ Score _____

True-False Test Items

Each of the following statements is either true or false. If the statement is true, draw a circle around the letter T following it; if the statement is false, draw a circle around the F. If a statement is false in part it is entirely false.

1. The term "drafting" may be defined as lines and arcs. T F
2. Advancing technology has created many new jobs for draftsmen. T F
3. The draftsman may act as an interpreter between a designer and a shop. T F
4. A clean environment is considered a benefit of the drafting trade. T F
5. Unsatisfactory absences from class are excusable if the time is made up after school. T F
6. Grades earned in class are earned completely by the drawings completed. T F
7. Good work habits in the classroom are as necessary as those in industry. T F
8. Special drafting assignments may contain parts of many different learning packages or units. T F
9. Student participation is not always required in a learning activity. T F
10. Learning packages should be completed without aid from the instructor. T F

Completion Test Items

Fill in the blank or blanks with the word or words that make the statement correct.

1. The use of a sketch allows a person to express his ideas in a _____ and _____ manner.
2. Sketches are either _____ or _____ projections of an object.

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3. For length, width and depth to look as they should, a sketch should be drawn to proper _____.

4. Horizontal lines should always be drawn from _____ to _____.

5. _____ paper is very helpful for laying out views and maintaining good proportion.

6. The pivoting method is helpful in sketching _____ and _____.

7. An isometric sketch shows _____ sides of an object in one view.

8. Most perspective sketches are made with _____ or _____ vanishing points.

9. All lines on sketches should be made in accordance with the standard _____ of lines.

10. Pencils used in sketching are usually of a _____ or _____ grade.

Multiple Choice Test Items

Each statement needs a word, a figure or a phrase to make it correct. Only one of the choices listed is correct. Place the letter of the choice you make in the space provided at the left.

___ 1. Knowledge which is necessary to have before being able to interpret a simple multiview drawing may consist of:

a. Standard basic drafting rules
b. A good idea of what the object on the drawing is
c. The primary design of the object
d. Recognition of all drafting symbols and abbreviations

___ 2. On an orthographic, multiview drawing, consideration should not be given to:

a. Leaving space around each view for dimensions
b. Centering the views on the drawing
c. Selection of the tracing paper size in accordance with the size of the object and scale used
d. The isometric views

___ 3. The most prominent lines on a drawing should be:

a. Center
b. Dimension
c. Visible
d. Hidden

___ 4. In erasing a drawing, which of these would you not do:

a. Clean the eraser before using it
b. Use an eraser shield
c. Erase over a hard blocking surface
d. Rub the eraser rapidly

___ 5. Making a drawing to scale means:

a. Producing a drawing that is fully dimensional
b. Producing a drawing that shows the object in a reduced size
c. Producing a drawing that shows the object in a larger size
d. Representing the object either full size, reduced size or enlarged size.

___ 6. The outstanding advantage of vellums is that they:

a. Do not wrinkle as easily as natural tracing papers
b. Withstand repeated erasing without leaving ghost marks
c. Take ink readily
d. Make better prints

___ 7. R-Size drawing sheets are:

a. 34" x 44"
b. 22" x 34"
c. Not specified to any particular size
d. Not used very often in industry

___ 8. In selecting the correct pencil for drawing purposes, which of the following requires least consideration:

a. Kind of paper
b. Object to be drawn
c. Kinds of lines
d. Sketching or instrument drawing

___ 9. The correct procedure to follow in connecting arcs and straight lines is to draw:

a. Lines first then connect them with the arc
b. Straight line, then the arc and follow with another straight line
c. Arc first and then connect the straight lines to the arc
d. Straight lines and arc in the most convenient sequence

___ 10. Predominant practice in industry is to place the title block in the:

a. Lower right hand corner
b. Upper right hand corner
c. Lower left hand corner
d. Most convenient location on the sheet

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ANSWER KEY TO QUINMESTER POST-TEST

True-False Test Items

1. F
2. T
3. T
4. T
5. F
6. F
7. T
8. T
9. F
10. F

Multiple Choice Test Items

1. a
2. d
3. c
4. d
5. d
6. b
7. c
8. b
9. c
10. a

Completion Test Items

1. Fast, efficient
2. Pictorial, orthographic
3. Proportion
4. Left, right
5. Grid or cross section
6. Arcs, circles
7. Three
8. One, two
9. Alphabet
10. Soft, medium